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ABSTRACT

This module is one in a series of seven focused on skills vocational teachers need to develop and manage programs that are performance-based and fully individualized. Designed to allow for individualization of a teacher education program, these modules supplement those prepared by the National Center for Research in Vocational Education for professional development of vocational teachers. The objective of this module is to help develop skill in establishing a rational grading system, one that has an outcomes orientation. Focuses are the difference between norm-referenced grading and criterion-referenced grading and development of a grading system that compares students to an absolute criterion when determining their grades. Contents include two learning experiences based on two enabling objectives that provide background information, practice experiences, or a combination. Completion of these experiences should lead to achievement of the terminal objective in the third and final learning experience with teacher performance assessment form. Each learning experience includes a learning activity (activities) with information sheets, case studies, and self-checks with model answer (as feedback). Optional activities may also be provided. (YLB)

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ED209457

ESTABLISH AN OUTCOMES ORIENTED GRADING SYSTEM

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CE 030 435

Professional Preparation Module

Vocational Teacher

FORWARD

This module is one in a series focused on the skills vocational teachers need to develop and manage programs that are performance-based and fully individualized. Modules in this series should be used to supplement those prepared by The National Center For Research in Vocational Education for the professional development of vocational teachers.

This series of modules was developed in direct response to Pennsylvania Vocational Education Program Compliance Standards which, among other things, demand that programs be performance-based to serve the occupational needs and interests of each enrolled student.

The need for developing a special series of modules was recognized by Dr. Carroll Curtis of the Bureau of Research and Evaluation Pennsylvania Department of Education and, through the financial support of his office, these modules were developed.

The modules were reviewed by Dr. Ruth Armstrong and Dr. Robert Elingler which led to changes in this edition of the series. Changes were also made on the bases of feedback received from certain or the more than 200 Vocational Teachers who used the modules during the 1980-81 academic year. The assistance of all who were involved in this effort is gratefully acknowledged.

Richard A. Adamsky
Project Director

INTRODUCTION

You undoubtedly remember the many times you were assigned a grade by one or another teacher. There were times when you probably felt that the grade you received was deserved and other times when you were assigned a grade either higher or lower than anticipated.

Student grading is as unpopular with many teachers as it is with many students and, despite the warning from many authorities that grading can have an unfavorable effect on students, student grading continues.

As a vocational teacher you will be required to assign students grades and this responsibility can be made far less unpalatable by your developing a grading system that has a rational base. Since vocational education has as its outcome the ability of students to perform occupational skills competently, the grading system that you use should be oriented to this outcome.

This module is designed to help you establish a rational grading system; a system with an outcomes orientation. You will learn the difference between norm referenced grading and criterion-referenced grading and learn how to develop a grading system that compares students to an absolute criterion when determining their grades.

ABOUT THIS MODULE

Objectives:

Terminal Objective: While working in an actual school situation, establish an outcomes oriented grading system.

Enabling Objectives:

1. After completing the required reading, demonstrate knowledge of the important considerations involved in establishing an outcomes oriented grading system.

2. Given case studies describing situations in which vocational teachers had to deal with student grading system problems, critique the teachers' performance.

Resources:

A list of the outside resources which supplement those contained within the module follows. Check with your Resource Person 1) to determine the availability and the location of these resources, 2) to locate additional references in your occupational specialty, and 3) to get assistance in setting up activities with peers or observations of skilled teachers if necessary. Your Resource Person may also be contacted if you have difficulty with directions, or in assessing your progress at any time.

LEARNING EXPERIENCE I

(Optional)

Reference: Kirschenbaum, Howard et al. Wad-Ja-Get? The Grading Game In American Education. New York, NY: Hart Publishing Company, 1971 and Hamilton, James et al. Determine Student Grades. Athens, GA: American Association for Vocational Instructional Materials (AAVIM), 1977.

LEARNING EXPERIENCE II

(None)

LEARNING EXPERIENCE III

(Required)

1. An actual school situation for an entire grading period.

2. A Resource Person to assess your competency at establishing an outcomes oriented grading system.

LEARNING EXPERIENCE I

OVERVIEW

Enabling Objective: After completing the required reading, demonstrate knowledge of the important considerations involved in establishing an outcomes oriented grading system.

Activity: You will be reading the information sheet, Establish An Outcomes Oriented Grading System, pp. 5-17.

Optional Activity: You may wish to read about the variety of grading systems used. If so, read pp. 292-307 in Wad-Ja-Get? The Grading Game in America by Kirschenbaum et al. and pp. 6-18 in Determining Student Grades by Hamilton, et al.

Activity: You will be demonstrating knowledge of the important considerations involved in establishing an outcomes oriented grading system by completing the Self-Check, pp. 18-20.

Feedback: You will be evaluating your competency by comparing your completed Self-Check with Model Answers, pp. 21-22.

Activity: For information concerning the considerations involved in establishing an outcomes oriented grading system, read the following information sheet.

ESTABLISH AN OUTCOMES ORIENTED GRADING SYSTEM

Mankind has the need to categorize things within the environment so as to bring order out of what would otherwise be chaos. For example, matter must fall into one of three categories - animal, vegetable, or mineral; schools must be public or private (elementary, secondary, or postsecondary); trees must be coniferous or deciduous.

Student grading, according to many authorities, serves no educational purpose and it has a detrimental effect on some. However, student grading is likely to remain a teacher responsibility for a very long time primarily due to mankind's need to bring order to his environment. This being the case, all vocational teachers must be able to develop and maintain a student grading system.

THE REFERENCE POINT

All student grading systems place students in categories; some will be classified as average, with some classified as either above or below average. Of importance is the question of comparison; above or below average as compared to what?

At this point in time, grading systems exist that establish student grades based on 1) a comparison of individual student achievement to the achievement of a class of students and 2) a comparison of individual student achievement to a predetermined criterion. In effect, the former system utilizes a relative reference point and the latter uses an absolute reference point.

Relative Reference Point

If you were asked to categorize yourself as a golfer, you might respond, "I'm excellent." If the same question was put to your golfing partner, he might respond, "he's average." The response difference in this case would be a result of you and your golfing partner comparing your golfing ability to different reference groups. For example, you might have considered yourself to be an excellent golfer as compared to those who you have competed against, while your partner may have considered you as an average golfer as compared to those he has competed against. As we see, categorization differences are a function of reference group differences.

The typical student grading system establishes a class of students as the reference group and categorizes each student in terms of how he or she compares to others in that group. In effect, the teacher calculates the average achievement for a class and assigns grades based on the degree to which the achievement of each student departs from the average. This approach to grading is often referred to as norm-referenced.

Norm-referenced grading is based upon the scientific observation that people differ in very predictable ways. For example, if we were to compare all golfers, we would find about one-third of them to be somewhat above average and another one-third somewhat below average. The remaining one-third would be rather equally distributed between being greatly above or greatly below average. This predictable distribution is graphically depicted below and refered to as the Normal Curve:

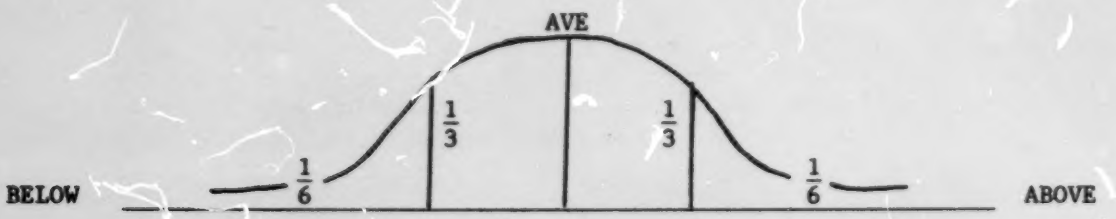

Fig. 1.

The whole idea of "normality" is deeply entrenched in our society and we tend to classify everything and everybody in terms of the norm - our perception of what it means to be average. People are of average height and weight or they depart from the average. The temperature for the day is either average or it departs from it.

Norm-referenced grading is deeply entrenched in our schools. Over the years, we have even developed mathematical procedures to help us properly classify each student so that grades will be normally distributed. In addition, we have developed techniques in test development that will cause students' test achievement to be normally distributed.

Absolute Reference Point

In recent years, educators have come to recognize the weaknesses of using a relative reference point when grading students. Many have even dismissed it as having no educational applicability since a class of 20 or 30 students could not be expected to achieve according to normality unless forced to do so through mathematical procedures or sophisticated test development.

Those disenchanted with norm-referenced grading have come to adopt criterion-referenced grading which is based on the belief that most students can achieve at a mastery level when provided with appropriate instruction and enough time to reach the level prescribed. In effect, mastery becomes the reference point for the system with mastery defined as an absolute.

Criterion-referenced grading, with its emphasis on mastery, has greater utility in vocational education than does norm-referenced grading. It should be obvious to all vocational teachers that students must develop certain skills to a prescribed level or have no chance of success when placed on the job for which they were prepared. The grades assigned students, therefore, must not be based on achievement at less than a mastery level.

This is an appropriate time to answer the question you probably have. If all students are expected to achieve (master) at the same level, do they all get the same grade? The answer to this question is both yes and no; It's "yes" if you're refering to learning a single occupational skill - all must master it, It's "no" if you're refering to all the occupational skills to be learned - some will master more skills than others and some will master skills more quickly than others.

In a criterion-referenced grading system all students must master each skill attempted with grades based on the differences among students in the time it takes them to master the skills. It follows, that students who master skills more quickly than others will master more skills in a given period of time, and that their grades could reflect this.

Earlier it was mentioned that advocates of criterion-based grading believe that most students can master all skills if given appropriate instruction and enough time. Research has verified this belief. In fact, there is ample evidence available to show that the differences in time needed to master skills virtually disappears as instruction becomes more in keeping with the learning style of each student. This assumes, naturally, equal motivation among students to master skills.

Teachers who have learned to develop modules (learning guides) realize how important it is to address differences among students by incorporating in modules alternative and optional learning experiences for students. In developing modules, the teacher is making instruction more appropriate to student needs which will subsequently reduce the differences among students in terms of how long it will take to master the skills around which the modules were developed. The most important outcome of module development will be that more skills will be mastered by more students in a given period of time.

THE TIME VARIABLE

As you know, schools operate according to a calendar with so much time available in a given day, week, month, and year for student instruction. As you also know, each school year is divided into grading periods. What you may not know, is that some schools operate on an open-entry/open-exit basis with students entering and leaving programs at almost any time during the school year.

The fact that schools operate on different calendars with some of them utilizing an open-entry/open-exit policy necessitates the development of a grading system that establishes the ratio of "time available" to "time to mastery." In the following sections these two "time" concepts are discussed.

Available Time

The typical vocational program is established to be of so many hours duration based on the advice of some authority or the time available after other mandated courses have been scheduled. For example, the typical vocational program in a Pennsylvania Area Vocational School is two years in length in which students have 1080 hours available for instruction (3 hours a day for 360 days).

Although all students would appear to have the same time available for instruction if in the same program, seldom is that the case. Students will have available time reduced through missing school due to illness or other personal factors. Students will also have available time reduced due to school-related factors such as participation in extracurricular activities and busing problems. The fact is that each student may have a different amount of time in which to master skills and this must be considered when assigning a grade.

Time To Mastery

As stated earlier, the time it takes students to master a skill will vary little if students are provided appropriate instruction and all have the same motivation to learn. However, learning motivation can vary considerably and seldom is the instruction provided for students appropriate to the needs of each. For these reasons, there will be significant differences among students in the time it takes them to master occupational skills.

In developing a criterion-referenced grading system, it is necessary to determine the standard mastery time. The standard is established as the average time it takes students to master a skill. For example, if 100 students have thus far mastered a particular skill and it took them a total of 500 hours to master it, then the standard would be 5 hours (500 hours divided by 100 students).

As might be obvious to you, as the number of students having mastered a skill increases, the validity of the standard improves. When the standard is based on the teacher's opinion alone or on information obtained from only a handful of students it could be very unrealistic. For example, one student could master a skill in 7 hours, another in 8 hours, and another in 9 hours. If the standard were set on a single student's time to mastery, the standard could vary from 7 to 9 hours. If the standard were set on any two students' time to mastery, the standard could range from 7½ hours to 8½ hours. In contrast, if all three students' time to mastery were averaged, the standard would be set at 8 which is more valid than the other possibilities offered.

When a teacher first develops a criterion-referenced evaluation system it is indeed necessary to set the standard time to mastery based on judgement alone. However, as students begin to master different skills it will be necessary to revise the standard. The teacher will find that very little if

any change in the standard will occur after the standard is based on results obtained from 100 students. In fact, a point will be reached where additional computation would be of no value since the standard remains constant.

STUDENT GRADING USING THE TIME VARIABLE

The vocational teacher who knows 1) how much time was available to a student during a particular grading period, 2) the standard time to mastery on the skills in the program, and 3) the skills mastered by the student, is in the position to arrive at a grade for the student. The easiest way to demonstrate this is to use the following example:

> Suppose a grading period consisted of 90 available hours of instructional time and a particular student was legally absent for 9 of those hours; in effect, the student's available time would be set at 81 hours. Suppose further that the student mastered seven occupational skills during the 81 hours and that the standard for each when added totalled 72 hours. In effect, the student's time to mastery was less than actual time available and you would expect the grade assigned to reflect this. To determine this student's grade, all you have to do is divide the total standard time (72 hours) by the total time available to the student (81 hours). In this case, 72 divided by 81 equals .888. The student's grade is 88.8% or 89% when rounded off. If it becomes necessary to assign grades using a letter grade system, the 89% can be so adjusted using whatever conversion system is used locally.

The above example does not address the situation in which a student is working toward mastery of a skill but has not achieved mastery at the time grades must be computed. In such a case two options are open to the teacher. The teacher can readjust available time lower by subtracting from it the time devoted already to the skill not yet mastered or award the student mastery time toward that skill but reduce the standard time on that skill. Which ever option is selected, the teacher must keep in mind the option used and take that into account the next grading period.

Let's consider an "option one example;" suppose the actual time available to the student was 81 hours and the student mastered seven skills for a total

of 72 standard hours. Suppose, further, that the student also spent two hours working toward mastering an eighth skill, but had not as yet mastered it. In option one, the teacher would reduce available time by two hours (79) and compute the student's grade by dividing 72 by 79 which would result in a grade of 91.1% or 91% when rounded off.

Since the student had already used two hours in an attempt to master an eighth skill that time would have to be added to available time in the following grading period. For example, if 82 hours were actually computed to be available the next grading period, the teacher would make grading computations using 84 hours as available time.

OTHER USES OF THE TIME VARIABLE

The relationship between available time for instruction and standard time to mastery provides several other educational applications that you may wish to consider.

Program Length

As stated previously, seldom is the length of a vocational program based upon more than an expert's opinion. However, once the standard time is determined for each occupational skill in a program, it becomes possible to compute the time (average) it will take students to master the skills in the program and establish a more realistic program length. For example, if too much time is made available to students, then the length of the program should be reduced or students should be allowed to exit the program earlier. Similarly, if too little time is available to master necessary skills, then the program length should be increased or articulation agreements with other institutions developed to assure students success when placed on the job.

Student Counseling

As stated previously, students will have different degrees of learning motivation which will have some effect on the time it takes them to master skills. However, a gross departure from the standard time to mastery indicates a learning problem.

There are some schools in which vocational teachers apply the two-thirds rule. Stated simply, if a student takes longer to master a skill than two-thirds of the students who have previously mastered it, then student counseling is required. The purpose of counseling is to determine 1) if instruction is inappropriate to the student's learning style, 2) if the student lacks sufficient motivation to succeed in the program, or 3) if the student requires remediation due to a lack of necessary prerequisite skills.

Instruction Modification

Earlier, the point was made that when the time taken to master skills varies widely among students, there is reason to question the appropriateness of instruction. The teacher, therefore, who finds a number of students falling below the standard time to mastery should question them in an attempt to determine the reason. Perhaps the teacher has not provided learning experience alternatives appropriate to their learning styles.

OUTCOMES ORIENTED GRADING

In the discussion of using the time variable when grading students, no mention was made of using such things as student test results or homework completed in computing students' grades. This being the case, you're probably wondering if such things should be considered when computing grades. The answer is no!

The grading system herein described is outcome oriented with occupational skill mastery the system's outcome. Grades, therefore, simply reflect differences among students in the time taken to achieve mastery. Teachers may prescribe homework in an attempt to help students progress toward mastery more rapidly or use testing in an effort to assess student progress toward mastery. However, neither tests nor homework are system outcomes and, therefore, such activity should not be considered in computing students' grades.

When you learned to develop terminal performance objectives, it was made clear that certain worker skills could not be identified through analyzing an occupation. Such things as punctuality and dedication to purpose, it was made clear, are as important to job success as are the occupational skills performed when on the job. For this reason, it was recommended that terminal objectives be developed that reflected appropriate worker "attitudes." You are again reminded of this because more traditional grading systems provide for grading student attitudes.

In outcome oriented grading, student attitudes are graded only if the teacher has developed terminal performance objectives to describe appropriate student attitudes. It follows, that the teacher would also have to develop student learning activities associated with these terminal objectives and that the standard time to mastery would have to be computed for these objectives as with all other objectives. In effect, if attitudes are important enough to grade, they must be considered important enough to teach. Since worker attitudes are important to job success, then they are essential outcomes of education and, therefore, should be taught and graded.

RECORD KEEPING

The vocational teacher who adopts outcomes oriented grading will be pleased to learn that the effort required to maintain appropriate records is

not great. The fact that students have primary responsibility to maintain accurate records is largely responsible for this.

The Time Card

It is a common practice in business and industry to require employees to punch in and out each working day and to record on their time cards the amount of time devoted to accomplishing duties assigned to them. It follows, that having students use time cards for a similar purpose would have educational value.

Most outcomes oriented grading systems make use of time cards which require students to record information needed by the teacher to assign grades. For example, consider the completed time card which follows:

LAST NAME: SMITH	FIRST: JOHN	STUDENT NO: 82515	PROG NO: 0021	TPO	005	010	015	016	022					TIME	
				TTD	12	8	14	2	4					DATE	HRS
				M	2	4								9/1	6
				T		2	4							9/2	6
				W	M Rev 4		2							9/3	6
				T		2	M Rev 2	2						9/4	6
				F				4	2					9/5	6
				TOTAL	(18)	16	(22)	8	6					John Smith	

STUDENT TIME CARD

Figure 2

On this card the student recorded his name, his student number, and the number of the program he was in. Across the top of the card, the student indicated the different objectives (terminal) that he had worked on during the week and the amount of time spent each day on a particular objective.

The student also recorded across the top (TTD) the total time to date spent on each objective prior to the current week and the total (on bottom) time upon week's end spent on the objective. Of interest, is that certain totals are circled indicating that the student had achieved mastery of these objectives during the week in question. Of equal interest is that on certain days particular objectives were finally mastered. Such is indicated by the teacher recording an "M" and signing his or her initials.

To the right of the card the student recorded the time he began and finished working on objectives each day and the total time each day devoted to work. Also on the right is the student's signature indicating that he attests to the accuracy of the information on the time card.

Maintaining an accurate time card takes little student time and very little teacher time. The teacher simply requires that students begin a new card each week, taking care to bring forward time spent on objectives not yet mastered. The teacher would collect time cards once each week and record the information therein contained on the grading period record.

Grading Period Record

The grading period record is nothing more than a compilation of the information found on the student's time card and the standard time for each objective the student has attempted to master. An example of a completed grading period record follows:

Student: Doe, John I. Student No: 20075 Program No: 90922

Grading Period: Sept. 1, 1982 - Nov. 15, 1982

Term.Per.Obj.	STD Hours	Hours to Mastery
001	10.2	11.1
005	9.5	9.7

Term.Per.Obj.	STD Hours	Hours to Mastery
010	11.0	12.0
011	15.0	14.2
012	22.2	24.0
101	13.0	14.0
006	21.0	20.1
008	15.5	16.0
TOTALS	117.4	121.1
GRADE	117.4 ÷ 121.1 = 96.9 = 97%	

TIME LOST:

Tardiness = 1.1 hrs. (2)

Absent = 12 hrs. (4)

Other = 6 hrs. (2)

Optional Activity: ⇨ For additional information about types of grading systems, you may wish to read the supplementary references, 1) Kirschenbaum et al., Wad-Ja-Get? The Grading Game in American Education, pp. 292-307 or Hamilton et al., Determine Student Grades, pp. 6-18.

Activity: ⬆ The following items check your comprehension of the material in the information sheet, Establish an Outcomes Oriented Grading System, pp. 5-17. Each of the items requires a short essay-type response. Please explain fully, but briefly, and be sure to respond to all parts of each item.

Self-Check

1. Some authorities feel that student grading serves no educational purpose. If this is so, why is it that student grading continues to be used?

2. Norm-referenced grading differs from criterion-referenced grading in several ways. Why is criterion-referenced grading a more rational approach to grading vocational students?

3. There are some who would have us believe that most students could master all school objectives. Given the differences among students, how could such a statement be realistic?

4. The concept of "standard time" is often used in an outcomes oriented grading system. What is meant by standard time and how does one establish the standard time?

5. If a vocational student had 102 hours available for learning in a particular grading period and mastered seven occupational skills for a total of 90 standard time hours, what would the student's grade be as a percent? What would it be as a letter grade if the following two conversion systems were used:

System A		System B	
88-100	= A	97-100	= A
75-87	= B	93-96	= B
62-74	= C	89-92	= C
46-61	= D	85-88	= D
Below 61	= F	Below 85	= F

6. In an outcomes oriented grading system students are not graded on quizzes, tests, homework, etc. Why are such activities not considered when grading students in such a system?

7. What function does a time card serve in an outcomes oriented grading system? What function does a grading period record serve?

Feedback: Compare your written responses on the Self-Check with the Model Answers given below. Your responses need not exactly duplicate the model responses; however, you should have made the same major points.

---

1. Mankind has the need to categorize things in an attempt to bring order out of chaos. Student grading is but another example of this need for categorization. Despite the fact that authorities even suggest that student grading can have a bad effect on some students, grading is likely to continue for many years.
2. There is no place in the business-industrial world for people lacking the skills needed to perform appropriately on the job. For this reason, vocational students must master certain occupational skills to become employable. Criterion referenced grading requires that all students master needed skills and that grading be based on the differences among them in the time required to achieve mastery. In effect, criterion referenced evaluation leads to all students having appropriate occupational skills whereas norm-referenced evaluation leads to some students having less than adequate skills to perform on the job. Criterion-referenced grading is a far more rational approach to grading vocational students.
3. Authorities state that most students can master all school objectives if provided with appropriate instruction and given sufficient time to master each objective. According to the authorities, the time needed by students to master objectives will differ very little if the differences among students are provided for through variations in instruction that meet their individual learning styles.

4. Standard time means the average time taken by students to master an objective. Standard time is computed by determining the total amount of time it takes a number of students to master an objective and then dividing by the number of students being considered. For example, if it took 100 students a total of 700 hours to master a particular objective, the standard time would be 7 hours; 700 hours divided by 100 students.

5. In this case, the student's numeric grade would be 88.2% which would be 88% when rounded off. This grade was determined by dividing standard time (90 hrs.) by available hours (102 hours). In using System A, the student's grade would be an "A" while in using system B, the student's grade would be a "D".

6. Teachers require students to do homework and other out-of-school activities in a attempt to help them eventually master the skills needed once placed on the job. Homework and the like are not outcomes of learning but rather learning activities. For this reason, grading should not focus on homework and the like. Quizzes and tests are used by teachers to determine if students are making progress toward program objectives. In effect, they serve a diagnostic purpose and should not be considered an appropriate outcome of the program. For this reason, student grades should not be based on quizzes and tests.

7. Both the time card and grading period record serve to help both the student and teacher maintain information essential for grading. Since the time card is used in much the same way as it would be used in the business-industrial community, it also serves an educational function.

LEVEL OF PERFORMANCE: Your completed Self-Check should have covered the same major points as the Model Responses. If you missed some points or have questions about additional points you made, review the material in the information sheet, Establish an Outcomes Oriented Grading System, pp. 5-17, or check with your Resource Person if necessary.

LEARNING EXPERIENCE II

OVERVIEW

Enabling Objective: Given case studies describing situations in which vocational teachers had to deal with student grading system problems, critique the teachers' performance.

Activity: You will be reading the case studies, pp. 25-28, and writing critiques of the performance of the teachers described.

Feedback: You will be evaluating your competency in critiquing teachers' performance in grading related activity by comparing your completed critiques with the Model Critiques, pp. 29-30.

Activity: The following case studies describe two very different situations. In Case Study 1, a hypothetical teacher and her supervisor are involved in a confrontation centering on the teacher's grading system, and in Case Study 2 a hypothetical teacher seeks to install an outcomes oriented grading system. Read each case study and then critique each using the questions provided as guides.

CASE STUDIES

Case Study 1.

Joyce Adams had taught commercial art at Indian River Area Vocational School for the last ten years and was surprised when her supervisor, Cindy Lees, informed her that her grading system was arbitrary and in need of a major overhaul. In an effort to resolve the problem, Cindy and Joyce agreed to meet after school to discuss the system currently used by Joyce and how it might be modified.

Joyce had plenty of time to think about her supervisor's accusation prior to the scheduled meeting and as the day went on she became more than a little disturbed by it. "She has some nerve," thought Joyce, "I've been grading students for 10 years without a single complaint from students or parents and now I'm supposed to change what has been successful." "Cindy has a lot to learn," thought Joyce, "and I'm just the one to teach her."

Cindy could see that Joyce was disturbed when she entered her office for the scheduled meeting. Cindy had expected this of Joyce but knew that the problem had to be resolved before any more complaints were received from employers of Joyce's students.

After Joyce was settled, Cindy asked her to explain the grading system she currently used. In response to this request, Joyce showed her an example of the system she used to determine the grade of Bill Tyler, one of her better students.

Name: Bill Tyler

Grading Period: Sept. 1, 1982 - Nov. 15, 1982

1.	Quizzes (10%) 95, 97, 82, 91, 97 = 92.4%	x1	924
2.	Major Tests (40%) 94, 96, 92 = 94.0%	x4	3760
3.	Class Participation (10%) excellent = 95%	x1	950
4.	Work Attitudes (10%) excellent = 95%	x1	950
5.	Projects (30%) 80, 81, 75 = 79.0%	x3	2370
			8954 = 90%

"As you can see," said Joyce, "my grading system is not arbitrary at all." "Bill was graded on numerous activities with each activity weighted."

If you were Cindy, Joyce's supervisor, what would your reaction be to Joyce's grading system? Was it arbitrary? Was Bill Tyler's grade an accurate reflection of his potential as a commercial artist? Why do you suppose employers were complaining about Joyce's students that they hired?

Case Study 2.

Larry Watkins had only this past summer decided to install an outcomes oriented grading system for his machine shop program. Larry had worked very hard over the past two years to complete an analysis of the skills needed by machinists and, based on the analysis, developed performance objectives and modules focused on these objectives. His decision to install an outcomes oriented grading system was closely related to his previous decision to individualize his program so that students could progress at a rate consistent with their personal motivation and ability.

In preparation for using his new grading system, Larry considered each terminal objective to be learned by his students and, through reflection and talking to other machine shop instructors, he established a standard time to mastery for each. Larry also developed a "time card" on which students could record progress and "grading period record" that he could use when computing student grades.

As the first day of the school year approached, Larry prepared for the moment when he would have to explain his new outcomes oriented grading system to his students. He knew that the students would have to understand the system's rationale and how it would work. This being the case, Larry decided to prepare an instruction sheet to be given each student on the first day of class. He started this task by making an outline for the content of the sheet.

OUTLINE

1. Rationale - a. system is easier to use than others
   b. system is fairer to students
2. Procedures - a. use time card (student)
   1) Record name, student no., program no.
   2) Record available time (clock in and out)

3) Record tasks worked on

4) Record amount of time on task (Daily & Total)

5) Teacher indicates "mastery" and initials

b. use grading period record (teacher)

1) record name, student no., program no.

2) record total available time

3) record time to master each objective

4) record standard time to master each objective

5) compute grade by dividing available time for mastery by standard time to mastery for tasks involved

6) reduce available time by time spent on skill not yet mastered when computing grade but carry to next grading period

c. conversion to sending school grading system

Do you think that Larry's outline, if fully developed into an instruction sheet, would cover the student's need to understand the rationale and procedures associated with his outcomes oriented grading system? If not, why?

Feedback: Compare your completed critiques of the case studies with the Model Critiques that follow. Your responses need not exactly duplicate the model responses; however, you should have covered the same major points.

Case Study 1.

The example used by Joyce indicates that she keeps excellent records and has made an attempt to have an objective system to determine students' grades. The example, however, reveals that her system is indeed arbitrary. This fact is easily established through observing the categories in which Joyce assigns grades and the relative weights given to each category. The first three categories, for example, account for 60 percent of the student's grade and do not even focus on the student's ability to perform occupational skills. Categories four and five are focused on occupational skills but it is difficult to determine which skills since it would appear that work attitudes are not something to be learned but rather to be possessed, and projects are something to do which may or may not result in learning occuaptional skills.

An examination of the system used to determine Bill Tyler's grade reveals that there is little to suggest that he has potential to become a commercial artist. There is no evidence of how many skills he has mastered during the grading period nor any evidence to suggest that he has progressed faster or slower than others attempting to learn the same skills. The example does show, however, that Bill is a good test taker and also takes an active role in classroom activities (he participates).

It is difficult to reach conclusions about why employers are calling Cindy to complain about Joyce's students but one strong possibility exists. Perhaps they are finding that an excellent student (based on the grade assigned) is not necessarily a person who has mastered the skills needed to be a commercial artist. Employers have a right to know the occupational skills that vocational program graduates have and, lacking this, they would expect an "A" student to have a high level of occupational competence.

Case Study 2.

It would appear that Larry has outlined the major features of the system in terms of the procedures that students and he will follow to collect and analyze the information from which grades will be computed. However, it also appears that Larry has not considered several important facts that could be used to establish a strong rationale for installing an outcomes oriented grading system; for example:

1. Anything worth teaching is worth having all students master; the system must reflect mastery.
2. The outcome of a Vocational Education Program is occupational competence; the system must focus on mastery of occupational skills.
3. Participation in learning activities leads to occupational competence but should not be considered as system outcomes nor graded.
4. Testing is used to find out how well students are progressing toward system outcomes but are not outcomes and thus should not be graded.

LEVEL OF PERFORMANCE: Your completed critiques should have covered the same major points as the Model Responses. If you missed some points or have questions about any additional points you made, review the material in the information sheet, Establish an Outcomes Oriented Grading system, pp. 5-17, or check with your Resource Person if necessary.

LEARNING EXPERIENCE III

FINAL EXPERIENCE

Terminal Objective:

While working in an actual school situation, establish an outcomes oriented grading system.

Activity

As part of your teaching duties, establish an outcomes oriented grading system for a class of vocational students.

This will include -

- Obtaining permission of school officials to use the system.
- Establishing the standard time for mastery of those terminal performance objectives that students will attempt to master.
- Preparing an appropriate record keeping system for recording student progress.

Note: Due to the nature of this experience, you will need to have access to an actual school situation for an entire grading period.

Feedback:

Arrange to have your Resource Person review your documentation.

Your total competency will be assessed by your Resource Person, using the Teacher Performance Assessment Form, pp. 33-34.

Based upon the criteria in this assessment instrument, your Resource Person will determine whether you are competent in establishing an outcomes oriented grading system.

TEACHER PERFORMANCE ASSESSMENT FORM

Establish An Outcomes Oriented Grading System

Directions: Indicate the level of the teacher's accomplishment by placing an X in the appropriate box under LEVEL OF PERFORMANCE heading. If, because of special circumstances, a performance component was not applicable, or impossible to execute, place an X in the N/A box.

_____
Name

_____
Date

_____
Resource Person

In adopting an outcomes oriented grading system, the teacher:	LEVEL OF PERFORMANCE					
	N/A	NONE	POOR	FAIR	GOOD	EXCELLENT
1. Made students aware of the rationale for the system and the procedures followed to determine their grades. . .						
2. Prepared time cards upon which students could record personal progress.						
3. Prepared grading period records upon which he/she could record the student's progress for the total grading period .						
4. Established the standard time to mastery for each terminal performance objective in the program.						
5. Prepared students to use time cards . .						

	LEVEL OF PERFORMANCE					
	N/A	NONE	POOR	FAIR	GOOD	EXCELLENT
When calculating individual students' grades for a given grading period, the teacher:						
6. Only focused on the amount of time used to master terminal performance objectives as this related to the established standard time to master terminal performance objectives						
7. Converted the calculated grade to an appropriate letter grade when this was required by a sending school district.						

LEVEL OF PERFORMANCE: All items must receive N/A, GOOD, or EXCELLENT responses. If any item receives a NONE, POOR, or FAIR response, the teacher and Resource Person should meet to determine what additional activities the teacher needs to complete in order to reach competency in the weak area(s).

ABOUT USING MODULES IN THIS SERIES

Organization

Each module is designed to help you gain competency in a particular skill area considered important to teaching success. A module is made up of a series of learning experiences, some providing background information, some providing practice experiences, and others combining these two functions. Completing these experiences should enable you to achieve the terminal objective in the final learning experience. The final experience in each module always requires you to demonstrate the skill in an actual school situation when you are an intern, a student teacher, or an in-service teacher.

Procedures

Modules are designed to allow you to individualize your teacher education program. You need to take only those modules covering skills which you do not already possess. Similarly, you need not complete any learning experience within a module if you already have the skill needed to complete it. Therefore, before taking any module, you should carefully review (1) the Introduction (2) the Objectives listed on p. 3, (3) the Overviews preceding each learning experience, and (4) the Final Experience. After comparing your present needs and competencies with the information you have read in these sections, you should be ready to make one of the following decisions:

- that you do not have the competencies indicated, and should complete the entire module
- that you are competent in one or more of the enabling objectives leading to the final learning experience, and thus can omit experience(s)
- that you are already competent in this area, and ready to complete the final learning experience in order to "test out"
- that the module is inappropriate to your needs at this time

When you are ready to take the final learning experience and have access to an actual school situation, make the necessary arrangements with your resource person and arrange (1) to repeat the experience, or (2) complete (or review) previous sections of the module or other related activities suggested by your resource person before attempting to repeat the final experience.

Options for recycling are also available in each of the learning experiences preceding the final experience. Any time you do not meet the minimum level of performance required to meet an objective, you and your resource person may meet to select activities to help you reach competency. This could involve (1) completing parts of the module previously skipped; (2) repeating activities; (3) reading supplementary resources or completing additional activities suggested by the resource person; (4) designing your own learning experience; or (5) completing some other activity suggested by you or your resource person.

TITLES OF MODULES IN THE "X" SERIES

X-1 Validate An Occupational Analysis

X-2 Prepare Valid Performance Objectives

X-3 Develop A Module For Individualized Instruction

X-4 Arrange For The Improvement Of Vocational Facilities For Individualized Instruction

X-5 Establish An Ends Oriented Grading System

X-6 Provide Students With Individualized Assistance

TITLE OF CHANGE AGENT MODULE

Assist Vocational Education Personnel Move Toward Full Adoption of Performance-Based Vocational Education